

**ABSTRACT**

Techniques for efficient W-CDMA modulation are disclosed. In one aspect, a multiplexing/coding chain for use in modulation such as that defined by the W-CDMA specification is disclosed. In another aspect, transport blocks are processed and concatenated, utilizing memory efficiently. This aspect has the further benefit of preparing transport channels for efficient subsequent processing. It also allows for ease of interface with the transport channel source. In another aspect, the use of repeated channel coding is used in lieu of an interleaver memory to provide channel coding and interleaving. These aspects, collectively, yield the advanced benefits of a system, such as W-CDMA, in a hardware efficient manner. The techniques described herein apply equally to both access points and access terminals. The techniques are not limited to W-CDMA systems; they are quite suitable to other systems requiring the various benefits the invention offers. Various other aspects of the invention are also presented.